

WHAT IS CLAIMED IS:

1. A method for transmitting a data entity comprising the steps of:
  - intercepting a first data entity from a stream of processing, before the stream of processing sends the first data entity over a first medium, the first medium differing from a second medium;
  - adding one or more data elements to the first data entity to generate a second data entity, the data elements allowing the second data entity to be transferred over the second medium;
  - transmitting the second data entity over the second medium;
  - removing the data elements from the second data entity to generate the first data entity; and
  - inserting the first data entity into the stream of processing, after the stream of processing would have sent the first data entity over the first medium.
  
2. A method for transmitting a plurality of data entities comprising the steps of:
  - (a) intercepting a first of a plurality of data entities from a stream of processing, before the stream of processing sends the first data entity over a first medium, the first medium differing from a second medium;
  - (b) adding one or more data elements to the first data entity to generate a second data entity, the data elements allowing the first data entity to be transferred over the second medium;
  - (c) transmitting the second data entity over the second medium;
  - (d) removing the data elements to generate the first data entity;
  - (e) inserting the first data entity into the stream of processing, after the stream of processing would have sent the data entity over the first medium; and
  - (f) repeating steps (a-e) for each one of the plurality of remaining data entities.
  
3. A method for receiving a transmitted data entity comprising the steps of:
  - receiving a first data entity transmitted over a second medium, the second medium different from a first medium, the first data entity having been transformed

from a second data entity by the addition of one or more data elements;  
generating the second data entity by removing the data elements; and  
inserting the second data entity into a stream of processing.

4. A method for transmitting a data entity comprising the steps of:

intercepting a data entity from a stream of processing, before the stream of processing sends the data entity over a first medium, the first medium differing from a second medium;

adding one or more data elements to format the data entity for the second medium; and

sending the data entity over the second medium.

5. A method for transmitting a plurality of data entities in parallel comprising the step of generating a plurality of threads, each thread executable on a separate processing device and further comprising the steps of:

intercepting a first data entity from a stream of processing, before the stream of processing sends the first data entity over a first medium, the first medium differing from a second medium;

adding one or more data elements to the first data entity to generate a second data entity, the data elements allowing the second data entity to be transferred over the second medium;

transmitting the second data entity over the second medium;

removing the data elements from the second data entity to generate the first data entity; and

inserting the first data entity into the stream of processing, after the stream of processing would have sent the first data entity over the first medium.

6. The method as recited in claim 1 further comprising prior to the intercepting step, the step of inserting, by a software tool, the data entity into the stream of processing.

7. The method as recited in claim 1 wherein a host agent performs the step of adding the data elements.
8. The method as recited in claim 1 wherein a target agent performs the removing step.
9. The method as recited in claim 1 wherein a target agent performs the removing and inserting steps.
10. The method as recited in claim 1 wherein a target server performs the adding step.
11. The method as recited in claim 1 wherein a target server performs the intercepting and adding steps.
12. The method as recited in claim 1 wherein the steps of removing and inserting are performed on an ARC processor.
13. The method as recited in claim 1 wherein the step of adding further comprises the step of wrapping the first data entity with the data elements; and wherein the step of removing further comprises unwrapping the data elements from the second data entity.
14. The method as recited in claim 1 wherein the step of transmitting further comprises the steps of:
  - writing to a mailbox;
  - and reading from the mailbox.
15. The method as recited in claim 1 wherein the step of intercepting further comprises removing the first data entity from a plurality of first handlers and the step of inserting further comprises giving the first data entity to a plurality of second handlers.
16. The method as recited in claim 1 wherein the step of intercepting and inserting is

performed by a medium translation layer.

17. The method as recited in claim 2 further comprising prior to the intercepting step, the step of inserting by a software tool, the data entity into the stream of processing.

18. The method as recited in claim 2 wherein a host agent performs the adding step.

19. The method as recited in claim 2 wherein a target agent performs the removing step.

20. The method as recited in claim 2 wherein a target agent performs the removing and inserting steps.

21. The method as recited in claim 2 wherein a target server performs the adding step.

22. The method as recited in claim 2 wherein a target server performs the intercepting and adding steps.

23. The method as recited in claim 2 wherein the steps of removing and inserting are performed on an ARC processor.

24. The method as recited in claim 2 wherein the step of adding further comprises the step of wrapping the first data entity with the data elements; and wherein the step of removing further comprises unwrapping the data elements from the second data entity.

25. The method as recited in claim 2 wherein the step of transmitting further comprises the steps of:

writing to a mailbox;

and reading from the mailbox.

26. The method as recited in claim 2 wherein the step of intercepting further comprises removing the first data entity from a plurality of first handlers and the step of inserting further comprises giving the first data entity to a plurality of second handlers.

27. The method as recited in claim 2 wherein the steps of intercepting and inserting are performed by a medium translation layer.

28. The method as recited in claim 3 wherein a target agent performs the step of generating the second data entity.

29. The method as recited in claim 3 wherein the steps of receiving, generating, and inserting are performed on an ARC processor.

30. The method as recited in claim 3 wherein a target agent performs the generating step.

31. The method as recited in claim 3 wherein a target agent performs the generating and inserting steps.

32. The method as recited in claim 3 wherein the step of generating further comprises unwrapping the data elements from the second data entity.

33. The method as recited in claim 3 wherein the step of receiving further comprises the step of reading from a mailbox.

34. The method as recited in claim 4 further comprising prior to the step of intercepting, the step of inserting, by a software tool, the data entity into the stream of processing.

35. The method as recited in claim 4 wherein a host agent performs the adding step.

36. The method as recited in claim 4 wherein the step of adding further comprises the step of wrapping the data entity with the data elements.

37. The method as recited in claim 4 wherein the step of sending further comprises writing to a mailbox.

38. The method as recited in claim 4 wherein the step of intercepting further comprises removing the data entity from a plurality of first handlers.

39. The method as recited in claim 4 wherein the step of intercepting is performed by a medium translation layer.

40. The method as recited in claim 4 wherein a target server performs the adding step.

41. The method as recited in claim 4 wherein a target server performs the intercepting and adding steps.

42. A system comprising:

a host, the host operable to:

intercept a first data entity from a stream of processing, before the stream of processing sends the data entity over a first medium;

add one or more data elements to generate a second data entity, the second data entity formatted for a second medium; and

send the second data entity over the second medium, the second medium different from the first medium;

a target, the target operable to:

receive the second data entity from the second medium;

generate the first data entity by removing the data elements; and

insert the first data entity into a stream of processing.

43. A host comprising:

a host computing environment, the host computing environment operable to:  
intercept a first data entity from a stream of processing, before the  
stream of processing sends the data entity over a first medium;  
add one or more data elements to generate a second data entity, the  
second data entity formatted for the second medium and the second medium different  
from the first medium; and  
send the second data entity over the second medium.

44. A target comprising:

a target computing environment, the target computing environment operable to:  
receive a first data entity transmitted over a second medium, the second  
medium different from a first medium, the first data entity having been transformed  
from a second data entity by the addition of one or more data elements;  
generate the second data entity by removing the data elements; and  
insert the second data entity into a stream of processing.

45. The system as recited in claim 42 wherein the host is a server; and wherein the  
target is a client.

46. The system as recited in claim 42 wherein the host computing environment further  
includes a debugger.

47. The system as recited in claim 42 wherein the target is a system development board.

48. The system as recited in claim 43 wherein the host is a server.

49. The system as recited in claim 43 wherein the host computing environment further  
includes a debugger.

50. The system as recited in claim 44 wherein the target is a client.
51. The system as recited in claim 44 wherein the target is a system development board.
52. The system as recited in claim 43 further comprising an output arranged to be coupled to a second medium.
53. The system as recited in claim 44 further comprising an output arranged to be coupled to a second medium.
54. A system comprising:
- a second medium, the second medium different from a first medium;
  - a server, the server operable to:
    - intercept a first data entity from a stream of processing, before the stream of processing sends the data entity over the first medium;
    - add one or more data elements to generate a second data entity, the second data entity formatted for the second medium;
    - send the second data entity over the second medium, the second medium different from the first medium;
  - a client, the client operable to:
    - receive the second data entity from the second medium;
    - generate the first data entity by removing the data elements; and
    - insert the first data entity into a stream of processing.
55. A system comprising:
- a second medium, the second medium different from a first medium;
  - a server, the server operable to:
    - intercept a first data entity from a stream of processing, before the stream of processing sends the data entity over the first medium;
    - add one or more data elements to generate a second data entity, the



second data entity formatted for the second medium; and

send the second data entity over the second medium, the second medium different from the first medium and connecting a server to a client.

56. A system comprising:

a second medium, the second medium different from a first medium;

a client, the client operable to:

receive a second data entity from the second medium;

generate a first data entity by removing a plurality of data elements added to the data entity to format the data entity for the second medium; and

insert the first data entity into a stream of processing.

57. A system comprising:

a target server, the target server operable to:

intercept a first data entity from a stream of processing, before the stream of processing sends the data entity over a first medium;

add one or more data elements to generate a second data entity, the second data entity formatted for a second medium; and

send the second data entity over the second medium, the second medium different from the first medium;

a target agent, the target agent operable to:

receive the second data entity from the second medium;

generate the first data entity by removing the data elements; and

insert the first data entity into a stream of processing.

58. A target server comprising:

a target server computing environment, the target server computing environment operable to:

intercept a first data entity from a stream of processing, before the stream of processing sends the data entity over a first medium;

add one or more data elements to generate a second data entity, the second data entity formatted for the second medium and the second medium different from the first medium; and

send the second data entity over the second medium.

59. A target agent comprising:

a target agent computing environment, the target agent computing environment operable to:

receive a first data entity transmitted over a second medium, the second medium different from a first medium, the first data entity having been transformed from a second data entity by the addition of one or more data elements;

generate the second data entity by removing the data elements; and

insert the second data entity into a stream of processing.

60. A method for transmitting a data entity comprising the steps of:

intercepting a first data entity from a stream of processing, before the stream of processing sends the first data entity over a first medium, the first medium differing from a second medium;

adding one or more data elements to the first data entity to generate a second data entity, the data elements allowing the second data entity to be transferred over the second medium;

transmitting the second data entity over the second medium; and

inserting the second data entity into the stream of processing, after the stream of processing would have sent the first data entity over the first medium.

61. A method for transmitting a plurality of data entities comprising the steps of:

(a) intercepting a first of a plurality of data entities from a stream of processing, before the stream of processing sends the first data entity over a first medium, the first medium differing from a second medium;

(b) adding one or more data elements to the first data entity to generate a second

data entity, the data elements allowing the first data entity to be transferred over the second medium;

(c) transmitting the second data entity over the second medium;

(d) inserting the second data entity into the stream of processing, after the stream of processing would have sent the data entity over the first medium; and

(e) repeating steps (a-d) for each one of the plurality of remaining data entities.

62. A method for transmitting a data entity comprising the steps of:

intercepting a first data entity from a stream of processing, before the stream of processing sends the first data entity over a first medium, the first medium differing from a second medium;

transmitting the first data entity over the second medium;

removing one or more data elements from the first data entity to generate a second data entity; and

inserting the second data entity into the stream of processing, after the stream of processing would have sent the first data entity over the first medium.

63. A method for transmitting a plurality of data entities comprising the steps of:

(a) intercepting a first of a plurality of data entities from a stream of processing, before the stream of processing sends the data entity over a first medium, the first medium differing from a second medium;

(b) transmitting the first data entity over the second medium;

(c) removing one or more data elements from the first data entity to generate a second data entity;

(d) inserting the second data entity into the stream of processing, after the stream of processing would have sent the data entity over the first medium; and

(e) repeating steps (a-d) for each one of the plurality of remaining data entities.

64. A method for transmitting a data entity comprising the steps of:

intercepting a first data entity from a stream of processing, before the stream of

processing sends the first data entity over a first medium, the first medium differing from a second medium;

formatting the first data entity to generate a second data entity, the second data entity able to be transferred over the second medium;

transmitting the second data entity over the second medium;

formatting the second data entity to generate the first data entity; and

inserting the first data entity into the stream of processing, after the stream of processing would have sent the first data entity over the first medium.

65. A method for transmitting a plurality of data entities comprising the steps of:

(a) intercepting a first of a plurality of data entities from a stream of processing, before the stream of processing sends the first data entity over a first medium, the first medium differing from a second medium;

(b) formatting the first data entity to generate a second data entity, the second data entity able to be transferred over the second medium;

(c) transmitting the second data entity over the second medium;

(d) formatting the second data entity to generate the first data entity;

(e) inserting the first data entity into the stream of processing, after the stream of processing would have sent the data entity over the first medium; and

(f) repeating steps (a-e) for each one of the plurality of remaining data entities.

66. A method for receiving a transmitted data entity comprising the steps of:

receiving a first data entity transmitted over a second medium, the second medium different from a first medium, the first data entity having been formatted from a second data entity;

formatting the first data entity to generate the second data entity by removing the data elements; and

inserting the second data entity into a stream of processing.

67. A method for transmitting a data entity comprising the steps of:

intercepting a data entity from a stream of processing, before the stream of processing sends the data entity over a first medium, the first medium differing from a second medium;

formatting the data entity for the second medium; and

sending the data entity over the second medium.

68. A method for transmitting a plurality of data entities in parallel comprising the step of generating a plurality of threads, each thread executable on a separate processing device and further comprising the steps of:

intercepting a first data entity from a stream of processing, before the stream of processing sends the first data entity over a first medium, the first medium differing from a second medium;

formatting the first data entity to generate a second data entity, the second data entity able to be transferred over the second medium;

transmitting the second data entity over the second medium;

formatting the second data entity to generate the first data entity; and

inserting the first data entity into the stream of processing, after the stream of processing would have sent the first data entity over the first medium.

69. A system comprising

a software development tool;

a target server accessible by the software development tool to receive a data entity from the software development tool and configured to generate a first package based on the data entity and formatted for transmission over a first communication medium; and

a medium translation system coupled to the target server and configured to receive the first package,

convert the first package into a second package based on the first package and formatted for transmission over a second communication medium different from the first communication medium,

check availability of a buffer on a target,  
 send the second package over the second communication medium to the  
 buffer when the buffer is available, and  
 send an indication to the target that the second package is present in the  
 buffer.

70. The system as recited in claim 69, wherein the indication included the address of a  
 memory location of the second package.

71. Computer readable media, having stored thereon, computer executable process steps  
 operable to control a computer, the process steps comprising:

intercepting a first data entity from a stream of processing, before the stream of  
 processing sends the first data entity over a first medium, the first medium differing  
 from a second medium;

adding one or more data elements to the first data entity to generate a second  
 data entity, the data elements allowing the second data entity to be transferred over the  
 second medium;

transmitting the second data entity over the second medium;

removing the data elements from the second data entity to generate the first data  
 entity; and

inserting the first data entity into the stream of processing, after the stream of  
 processing would have sent the first data entity over the first medium.

72. Computer readable media, having stored thereon, computer executable process  
 steps operable to control a computer, the process steps comprising:

(a) intercepting a first of a plurality of data entities from a stream of processing,  
 before the stream of processing sends the first data entity over a first medium, the first  
 medium differing from a second medium;

(b) adding one or more data elements to the first data entity to generate a second  
 data entity, the data elements allowing the first data entity to be transferred over the

second medium;

- (c) transmitting the second data entity over the second medium;
- (d) removing the data elements to generate the first data entity;
- (e) inserting the first data entity into the stream of processing, after the stream of processing would have sent the data entity over the first medium; and
- (f) repeating steps (a-e) for each one of the plurality of remaining data entities.

73. Computer readable media, having stored thereon, computer executable process steps operable to control a computer, the process steps comprising:

- receiving a first data entity transmitted over a second medium, the second medium different from a first medium, the first data entity having been transformed from a second data entity by the addition of one or more data elements;
- generating the second data entity by removing the data elements; and
- inserting the second data entity into a stream of processing.

74. Computer readable media, having stored thereon, computer executable process steps operable to control a computer, the process steps comprising:

- intercepting a data entity from a stream of processing, before the stream of processing sends the data entity over a first medium, the first medium differing from a second medium;
- adding one or more data elements to format the data entity for the second medium; and
- sending the data entity over the second medium.

75. Computer readable media, having stored thereon, computer executable process steps operable to control a computer to transmit a plurality of data entities in parallel, the process steps comprising generating a plurality of threads, each thread executable on a separate processing device and further comprising the steps of:

- intercepting a first data entity from a stream of processing, before the stream of processing sends the first data entity over a first medium, the first medium differing

from a second medium;

adding one or more data elements to the first data entity to generate a second data entity, the data elements allowing the second data entity to be transferred over the second medium;

transmitting the second data entity over the second medium;

removing the data elements from the second data entity to generate the first data entity; and

inserting the first data entity into the stream of processing, after the stream of processing would have sent the first data entity over the first medium.